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Contrasting local responses to globalization: the case of volume yacht manufacturing in Europe

Richard Blundel and Michael Thatcher

This paper is concerned with contrasting the impact of globalization pressures on industrial development in particular localities, with specific reference to the relative performance of regional clusters. A multiple case study approach is adopted in order to examine the decline of volume yacht manufacturing in a long-established English cluster and to compare its responses to globalization with those of major competitors located in other parts of Europe. The case study opens with an analysis of three sector-specific drivers of globalization that have exercised a decisive impact on the sector over the last three decades. In the main analytical section, two alternative approaches to the analysis of clusters (Porter 1990, 2000, Best 2001) are applied to the empirical material. The application of Porter's 'diamond' framework suggests some distinctive performance-related characteristics, while Best's 'cluster dynamics' model provides a more sophisticated explanation of the differential responses and outcomes identified in the English case. The implications for policy are that cluster-level outcomes may be predicated on the internal dynamics of their respective 'entrepreneurial firms', and that regional development initiatives would benefit from conceptual and empirical studies that can better address the historical and spatial complexity of the underlying processes.

Keywords: globalization; yacht manufacturing; competitiveness; clusters; entrepreneurial firms.

1. Introduction

1.1 Globalization pressures and the 'clusters' debate

Economic development theory has been challenged by the reassertion of regions, with particular attention being focused on the complex interplay between processes of agglomeration and globalization (Rugman 2000, Porter 2003, Scott and Storper 2003). The concept of regional clustering has secured a prominent position in this literature, and has proved to be influential in the policy arena (Department of the Environment, Transport and the Regions [DETR] 2000, Organisation for Economic Co-operation and Development [OECD] 2001). This concept owes much to the Marshallian industrial district and many recent elaborations, including the work of Brusco (1982), Piore and Sabel (1984), Amin and Thrift (1992) and Storper (1997). The business scholar, Michael Porter has also drawn on this literature, integrating

it with his earlier work on competitive advantage to create a popular, practitioner- oriented 'cluster theory' (Porter 1998, 2000). In his definition, clusters comprise:

Geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g. universities, standards agencies, trade associations) in a particular field that compete but also co-operate (Porter 2000: 15).¹

Porter has deployed his 'competitive diamond' framework as the principal conceptual tool for analysing clusters (Porter 1990, Ketels 2003: 7). The diamond comprises four elements: factor conditions, demand conditions, the context for strategy and rivalry, and related and supporting industries. Although the diamond framework had been applied to the analysis of business environments at various levels, including the nation and the region, its relevance to cluster analysis is indicated in Porter's confident assertion that 'A cluster is the manifestation of a diamond at work' (Porter 2000: 21). However, while recent empirical studies have shed new light on the structure and dynamics of cluster-like phenomena in particular industry sectors and geographic locations (Lorenzen 1998, Requier-Desjardins et al. 2003, van Dijk and Sverrisson 2003), there has also been an increasingly polarized debate regarding the way in which the core concept has been developed and applied. Critics argue that proliferation of the clusters literature has brought with it a confusing variety of definitions, and a general lack of clarity over some of the key definitional parameters such as the drawing of spatial and sectoral boundaries.² The 'diamond' framework had attracted particularly strong criticism, with detractors arguing that its conceptual limitations are a hindrance to empirical research, with potentially damaging effects on regional policies (Davies and Ellis 2000, Simmie 2002, Palazuelos 2005). More specifically, the framework is seen as conflating processes that operate at different spatial scales, and compressing the complex temporality of causal relationships:

The social dimensions of cluster formation and cluster dynamics remain something of a black box in Porter's work. While he stresses, for example, the importance of local social networks for the production and flow of information and knowledge within clusters, these processes are conspicuously under-theorised in his cluster model (Martin and Sunley 2003: 16-17).

In addition, the cluster literature, including Porter's contribution, lacks a serious analysis of firm-level learning, and its relationship to surrounding institutional structures (Best and Forrant 1996, Keeble et al. 1999, Martin and Sunley 2003: 17). The present paper aims to contribute to this debate through a comparative case study of the evolution of regional clusters, analysed with reference to the Porter diamond and to an alternative conceptual framework developed by Best (2001). The case study concerns the contrasting responses of European yacht manufacturers to a number of sector-specific globalization pressures. In the late twentieth century, these pressures contributed to an intensification of competitive rivalry in this industry sector, with contrasting

outcomes for firms located in various European locations. There is now a vibrant cluster on France's Atlantic coast, the country's largest yacht manufacturer having become the world leader in the volume market, reputedly twice the size of its nearest rival. Germany has taken an entirely different path to volume yacht manufacturing, fuelled by new entrants pursuing radical innovations in production techniques and spatial organization. In Sweden, the leading cluster has undergone a turbulent period, but has successfully reinvented itself as a centre for export-led manufacturing of premium products. Meanwhile, England's long-established yacht manufacturing cluster has retreated from its previously strong position in the volume market, having struggled to respond to the consequences of globalization. The analytical section of the paper explores factors that have given rise to these observed differences, with a particular emphasis on the relative decline of the English cluster. The focus of the empirical study is on explaining differences in cluster dynamics; this allows us to assess the capacity of each conceptual framework to probe causal relationships over time and across multiple levels of analysis (cf. Davies and Ellis 2000: 1205-1206).

2. Methodology

2.1 Background to the comparative case study

The study was conducted in an industry sector that is engaged in the volume manufacture of cruising yachts. Cruising yachts can be defined in product terms as decked, sea-going craft of lengths between 8 to 15 metres (26 to 50 feet). They are powered principally by sails, with auxiliary engines permanently installed, and offer accommodation and other facilities for living aboard in reasonable comfort. Although cruising yachts are sometimes entered in racing competitions, they are not expressly designed for this purpose (Giorgietti 2000).³ The study concentrates on traditional yacht manufacturing regions on the South Coast of England, in the Vendée region of Western France, and around the island of Öst in Sweden. It also examines yacht manufacturing centres in Northern Bavaria and on Germany's Baltic coast, which have emerged in recent years to challenge Europe's more established enterprises.

2.2 Research approach and methods

The main empirical focus of the study was on the relative decline of the long-established English cluster, in the face of globalization pressures. The analysis was conducted with reference to two prominent frameworks that have sought to conceptualize the relationship between differences in the relative performance of regional agglomerations and their underlying causes. The research approach was inductive and exploratory, reflecting both the contested nature of the research area (i.e. the conceptualization and empirical investigation of regional clusters), and the fact that yacht manufacturing is an under-researched industry sector (cf. Parsons and Rose 2003: xiii). We adopted a multiple case study design, in which the main unit of analysis was the regional agglomeration, and the embedded units of analysis were the constituent firms and other actors (Miles and Huberman 1994: 29-30, Yin 1994: 20-27, 44-51). Our decision to select the English cluster and the three comparative cases was based on the theoretical usefulness of each unit of analysis in relation to the central research questions (Eisenhardt 1989: 533-537, Yin 1994: 21-25, Wilson and Vlosky 1997: 60). While volume yacht manufacturing in the English

cluster had undergone a period of relative decline, contrasting responses and outcomes could be observed in the other three European regions that were selected for this study.

The case material was compiled using multiple methods and sources. Secondary data sources included: company publications, industry reports and statistics, historical accounts and contemporary coverage of relevant issues in specialist trade and consumer magazines. Primary data was gathered through a series of semi-structured in-depth interviews, which were conducted by one of the co-authors. Interviews were tape recorded and transcribed for subsequent analysis; extracts have been incorporated into the results and analysis sections of this paper. The main interviewees comprised: two former managers of a yacht manufacturer previously located in the English cluster; one manager of a yacht manufacturer located in another country covered by this study; one manager of a non-European yacht manufacturer with a production site in England. Additional informal interviews were conducted with a representative of a national trade association, the British Marine Federation, and with several representatives of yacht manufacturers at the annual Southampton Boat Show. The interview material was complemented by participant observation, which included reflection on the researchers' own experiences as members of the yachting and sailing community. The researchers also posted open questions on two specialist Internet discussion boards, the Yachting Monthly 'Scuttlebucket' forum and the Westerly Owners Association forum. This non-probabilistic sampling strategy generated a supplementary source of rich qualitative material, in the form of competing interpretations of recent events in the English cluster, from the perspective of various informed groups, including yacht owners, manufacturers, journalists and other industry specialists (Hewson et al. 2003: 12, 42-46). In the event, these responses also indicated the persistence of certain strongly-held views (e.g. in relation to yacht design and construction methods), which could be triangulated against the semi-structured interview data and the historical source material. Finally, we should note that each of the co-authors has some direct experience of yachting and sailing, primarily in an English context. This experience proved to be of considerable value in establishing initial credibility with the interviewees and other respondents, in obtaining access to secondary data and in clarifying certain technical issues (e.g. in relation to the issue of stability and seaworthiness of particular designs). However, it also raised the possibility that personal pre-conceptions might become a source of bias, as a result of interviewer effects or during the subsequent analysis. We controlled for this possibility in various ways: we sought to avoid premature closure by dividing the main field interviewing, secondary data collection and analytical tasks between the two researchers (Eisenhardt 1989: 538); method and data triangulation were incorporated into the research design (Denzin 1978, Miles and Huberman 1994, Yin 1994: 91-93). Finally, we made a conscious effort to read the various sources 'against the grain', notably in relation to prevailing explanations for the decline of the English cluster, recognizing that respondents are actively involved in the construction of their own rationalizations, meanings and identities (Silverman 1993).

The case study is constructed in the form of parallel historical narratives, compiled from the primary and secondary sources, which give an overview of events occurring in France, Germany, Sweden and England as manufacturers and other actors responded to the globalization pressures. This chronological structure has been adopted in order to examine the causal sequences over an extended period. Descriptive material has been included in order to help the reader to understand the research setting (Zeller 1995: 76); it also provides a precursor

to the analytical section, where the ‘facts’ of the case are related to the two conceptual frameworks under discussion (Yin 1994: 136-141, Pentland 1999). The analysis is presented in two stages. In the first stage, the four narratives are analysed with reference to the Porter diamond framework, the primary purpose being to assess its explanatory potential. In the second stage, evidence from the English case is subjected to further analysis, with reference to Best’s cluster dynamics model. By introducing this element of repetition, it is possible to show the extent to which each of these conceptualizations provides a satisfactory explanation of the phenomena presented in the case material (Yin 1994: 139). The narratives are preceded by a short introduction, which identifies three sector-specific globalization drivers, and indicates how these have combined to intensify competition between volume yacht manufacturers in Europe.

3. The context: globalization pressures on volume yacht manufacturers

3.1 Introducing the globalization drivers

Debate on the nature of globalization, or convergence, of world markets has counter-posed a variety of technological, institutional, competitive and market-related factors (Yip 1995, Rugman 2000, Stiglitz 2004). Our review of developments in yacht manufacturing and related industries has indicated that three inter-related globalization drivers have been particularly active over the last three decades: the homogenization of the market for cruising yachts; technological innovation in design and manufacturing processes; and the regionalization of statutory frameworks. In the following sections, we introduce these drivers, discuss their antecedents, and begin to assess their impact on the volume yacht manufacturing sector.

3.2 Homogenizing consumption - the rise of an international charter market

The emergence and rapid expansion of the international yacht charter market has had a profound impact on volume manufacturing. Market growth has been fuelled by increased disposable incomes in industrialized countries, the reduced cost of air travel and attractive exchange rates in host countries, and emerging consumer preferences for ‘independent’ activity-based holidays. Charter holidays range from inexpensive ‘flotilla’ packages for novices, to ‘bareboat’ hire (i.e. without professional supervision), to luxury charters in more distant locations. International yacht charter companies have also grown significantly in this period. The world’s largest yacht charter company, Sunsail, is headquartered in the heart of the English cluster; it has a fleet of over 1,200 yachts and catamarans and operates in 23 countries. The growth of these firms has had several effects on the market for cruising yachts. Collectively, the charter industry has become a significant global customer, transforming the nature of demand. Most obviously, the charter firms purchase in bulk, in contrast to traditional yacht owners. For example, in June 2002, Sunsail placed an order with Beneteau/Jenneau for 180 new yachts, worth 20 million Euros (Sunsail 2002). Charter firms have also pioneered shared ownership programmes, further reinforcing and reconfiguring demand for cruising yachts. Evidence from these schemes, and from associated depreciation records, indicates that leading companies are replacing their charter fleets on cycles of approximately 5 years. The fundamental design requirements for a successful cruising yacht have been reconstituted by the commercial imperatives of charter firms. In contrast to the era of private ownership, chartering is, as one interviewee put it, ‘all about berths [sleeping bunks] per dollar’. In practice, this operating ratio has favoured so-called

‘light displacement’ designs. These are yachts with a wide beam (cross-section) and high internal volume. They can be contrasted with traditional ‘heavy displacement’ yachts, whose characteristically elegant ‘wine glass’ cross-section results in a much narrower beam and a longer keel. The charter industry has created several other novel requirements for manufacturers, including: the production of ‘matched’ fleets to facilitate competitive racing charters; the provision of standardized and modularized components, primarily for ease of maintenance; and potential for mass customization to meet the needs of particular locations and market segments. The charter companies have also had an indirect, yet pervasive, homogenizing effect on consumption in this sector. In the past, the perceptions of yacht purchasers were generally the product of long-term and location-specific activity; people grew up sailing in their home waters and acquired local experiential knowledge. The increasing popularity of international chartering has generated a new kind of yacht purchaser, whose expectations have been shaped by the more transient and ‘place-less’ experience that it offers. One consequence is that these new customers demand similar products and services across the world and in their domestic markets.

3.3 Technological innovation - the logic of mass customization

Until the second half of the twentieth century, yacht construction in Europe remained a craft industry, founded on localized tacit knowledge in the areas of wood-working and sail-making. When the Swedish boatbuilder, Harry Hallberg, built his first wooden yachts in the early 1940s, he was known for working ‘more or less by instinct’, reflecting the prevailing view that, ‘someone who cannot build a boat without drawings cannot call himself a real boat builder’ (Hallberg-Rassy 2003). However, following the Second World War, boat builders found it necessary to introduce volume production methods, in order to substitute for shortages in skilled labour and materials, and to meet an increasing demand for lower-priced yachts and dinghies (Blundel 2005). While artisanal skills remain today, most obviously in the wooden interior construction of some yachts, manufacturing processes have become increasingly industrialized. Hallberg’s own career illustrates two of the key technological developments on this path, the replacement of wooden hulls with moulded fibreglass reinforced plastic (commonly abbreviated ‘FRP’ or ‘GRP’), and the introduction of serial production, both of which were evident in yacht manufacturing clusters from the early 1960s (Phillips-Birt 1974, Spurr 2000). Increasing use of industrial processes has engendered a self-reinforcing logic of pursuing scale economies to offset the high proportion of sunk costs in this industry. Apart from the large, specialized premises needed, manufacturers incur high costs in developing yachts to the production stage, including design, tooling and preparation of the GRP mould. Greater volume allows manufacturers to spread these costs, permitting more competitive pricing and enabling the leading firms to re-invest in more sophisticated automation systems. The introduction of computer-aided design and manufacturing (CAD/CAM), from the late 1980s onwards, has contributed to improved manufacturing efficiency and market responsiveness. It has also encouraged a more rapid diffusion of innovations, as designers translate ideas that have been pioneered on racing yachts into new features for the cruising yacht market. However, as in other industries, a secondary effect of the new technologies has been to increase the pressure for growth in production volume. This pressure is intensified by interaction between innovations in design and production technologies and changing market dynamics, including charter firm requirements for shorter cycle times, increased flexibility and responsiveness.

3.4 The regional regulatory framework - the Recreational Craft Directive

Sailing was an early subject of international regulation, in the form of rules covering matters of mutual concern, such as navigation, signalling, piracy and salvage. However, until recently leisure boat manufacturing operated according to a variety of local standards, often with very limited formalization. Consequently, the most important institutional change to affect the yacht industry has been the introduction of the European Union's Recreational Craft Directive 94/25 (RCD). Since June 1998, almost all new recreational craft of between 2.5 and 24 m in length have been required to comply with the requirements of the RCD; designs are classified by specialist companies and a 'CE' mark is issued to certify the manufacturer's compliance with the Directive. The RCD superseded various national codes, establishing Europe-wide safety requirements and minimum specifications in areas such as structural strength, stability and buoyancy. Although it did not come into force until 1998, the RCD was in effective use for several years prior to this date, as yacht designers and manufacturers made preparations, albeit at variable rates (Wittamore and Brown 1997: 14, 25). The Directive has stimulated intra-regional sales and also attracted non-European manufacturers to the market as harmonized standards reduced the costs of localization (Nighy 2002: 36, Luhrs Marine 2003).

4. Regional responses to globalization: a comparative case study

4.1 Introduction

This section outlines the contrasting regional responses to these sector-specific globalization pressures. The case concentrates on volume yacht manufacturing in four European countries. France and Germany dominate the industry, accounting for 70% of production in the 7.5 to 12 m range and an even higher percentage in the 12 to 24 m range (Table 1). Production volumes for Sweden and England are much lower, with the exception of the smaller 2.5 to 7.5 m range, where English dinghy (i.e. 'sailboats'); the 7.7-24 m ranges include 'motorsailers' (i.e. yachts that make more routine use of their engine than a typical sailing yacht). (or 'sailboat') manufacturers have retained a significant presence (Blundel 2005). For presentational purposes, the broad scope of the historical developments in each region has been summarized with reference to the changing fortunes of its leading firms.

[Insert Table 1 here – not reproduced in ORO archive version]

Source: British Marine Federation (2004), data extracts reproduced with permission, percentage figures are derived and should be taken as indicative (n.b. the 2.5-7.5 m range includes dinghies)

4.2 France (Vendee) - Beneteau and Jeanneau

The French yacht manufacturing cluster is located in the Vendee, on the West coast of France (i.e. the 'France Atlantique' region). The marine industries, one of the region's main economic sectors, range from the construction of cruise liners and naval vessels to yachts and other leisure craft. The Vendee is home to two of the world's largest yacht manufacturers, Beneteau/Jeanneau and Dufour, and contains an extensive support network of suppliers and sub-contractors. Beneteau traces its origins to 1884, when the founder established a boatyard in Croix-de-Vie, in

order to build fishing trawlers. Diversification into sailing yachts occurred in the early 1960s, under the third generation of the Beneteau family. In the mid-1970s, the firm took up competitive racing and in its centenary year, it entered the unlisted securities market of the Paris Stock Exchange. Two years later, in 1986, Beneteau opened a manufacturing plant in South Carolina; it is now one of the top three manufacturers in the USA (Beneteau 2003). However, throughout this period, this French family-controlled company had a bitter local rival in the form of Jeanneau, and other domestic competition from firms such as Dufour and Gib'sea, all of which became major suppliers to the charter industry during the 1980s and early 1990s. Soon after Beneteau's foray into North America, Jeanneau was acquired by a US company. Then, in 1996 Jeanneau, which had gone into liquidation, was re-sold to its former adversary. Both brands have been retained in the merged company and separate teams each continue to design and produce their own product lines, with limited co-ordination on specifications. The combined brands claim about a 25% share of the world-wide sailing cruiser and performance cruiser market (International Boat Industry News [IBIN] 2002). They have developed dual brand strategies, translating innovations from racing yachts into their cruising ranges (Sheahan 2001b). Both companies sell heavily to the yacht charter market, and design yachts that can have different interior configurations to satisfy both individual, as well as charter company requirements. In fact Jeanneau has gone further and announced a design whereby charter customers can change the cabin configuration on their yachts on an ad hoc basis after delivery, something that is seen as offering a big advantage to charter companies. The designs in general are of the light displacement variety and incorporate wide 'beam to LOA' (length over all) ratios, allowing for expansive accommodation. The manufacturing operations at both firms are based on CNC equipment for efficiency and high specification quality, and a production line process (Sheahan 2001b). Their value system incorporates the use of in-house and external designers. Other aspects of production are more integrated than those of European rivals such as Bavaria Yachtbau (see 4.3), with both plugs and hull moulds being constructed in-house.

4.3 Germany (Northern Bavaria and the Baltic coast) – Bavaria Yachtbau and Hanse

Bavaria Yachtbau and Hanse are amongst Germany's largest and most successful volume yacht manufacturers. Neither firm can be described as the product of a conventional, neo-Marshallian cluster, even where spatial range is interpreted in the broadest 'Porterian' sense (Martin and Sunley 2003). Bavaria Yachtbau is a privately owned company, founded in the late 1970s by Winfried Hermann. During the 1990s, the firm experienced rapid growth, its production volumes rising from just over 300 yachts per annum in 1995 to more than 2,000 yachts in 2001 (Bavaria Yachtbau 2003). This aggressive expansion was financed from the company's own reserves (Draper 2002) and saw it overtaking leading domestic rivals, such as Dehler, which had manufactured in North Rhine-Westphalia since the 1940s. The great inland lakes of Southern Bavaria have supported an indigenous boat building community, yet the rapid rise of Bavaria Yachtbau appears unconnected to these traditional activities. Rather, the company's innovative response to globalization, was based on the application of a modern industrial manufacturing template, with manufacturing operations located on a 'greenfield' site in Northern Bavaria, near the city of Wurtzburg. It exports approximately 85% of its output through more than 30 importers and dealers around the world. The General Manager's rationalization of Bavaria Yachtbau's location underlines the firm's break with the sector's established production and marketing practices: We are perfectly placed to service our markets. The Baltic, the North Sea,

the French and Mediterranean coasts are almost the same distance away from us. There's no point being close to the sea (cited in Neilsen 2001a: 86).

Bavaria Yachtbau has pursued a clear 'cost leadership' strategy, based on sourcing and supply chain management principles. The company focused on each stage of the value system in order to achieve what it terms the 'best possible balance between price and quality' (Neilsen 2001a: 85), and a relentless pursuit of productivity improvements. The design and production of the hull moulds is outsourced to a Slovenian firm, J&J Design, which undertakes design work for several European yacht manufacturers, including the French yacht builder, Dufour. This outsourcing strategy allows Bavaria to focus on the task of optimizing its production capabilities. In 1999, Bavaria contracted the German tool-maker, Maka, to custom-build a 5-axis Computerized Numeric Control (CNC) machining centre that is used to trim, drill and profile its deck mouldings; it was the largest that Maka had ever built. Bavaria's designs are based on modern light displacement principles, but were characterized as 'conservative' by one of our interviewees, suggesting that the primary focus for innovation relates to the production process. The inherent user benefits of these designs, coupled with their price advantage, have allowed Bavaria to capture a large proportion of the rapidly growing charter market, mainly in the sailing school sub-sector. Bavaria's recent growth was facilitated through a 'build-to-order' manufacturing model. From the laminating shop, the yachts are placed on two 400-foot production lines for assembly. Cellular teams of workers concentrate on each part of the construction. The CNC cutters in the woodwork shop can complete the entire wood requirements for a yacht in less than an hour, and the giant Maka CNC machine can complete the deck cutting of the 34-foot yacht in 80 min (Draper 2002). The low-cost mentality is evident in that the off-cuts from the woodwork shop are burnt in the factory boilers, providing heat. Bavaria Yachtbau has also formed close vertical ties, ensuring that component suppliers design with the specific intention of simpler and more rapid assembly. While drawing heavily on the region's industrial engineering heritage, the firm does not appear to reflect any tradition of boat building and associated craft skills. In contrast to its Southern German counterpart, Hanse has the appearance of deriving from a more conventional industrial district. Its production facilities are located in Griefswald, an historic Hanseatic city on Germany's Baltic coast with a long-established boat-building tradition. The company's promotional materials highlight the city's artisanal heritage:

With their practised craftsmanship and a passion for the sea inherited from generation to generation, the local artisans have always built ships and boats of the best quality (Hanse 2004).

However, the company's origins are more recent and less spatially bound. Hanse was established by a Hamburg-based yacht broker and America's Cup yachtsman, Michael Schmidt. In 1990, following the reunification of Germany, Schmidt identified a business opportunity in the market for affordable medium-displacement cruising yachts, well-suited to Northern European waters. Having entered the market at the lower end, the company now builds a range of well-equipped cruising yachts ranging between 9 and 12 m in length. While the target market is different, Hanse's overall approach appears to be based on a similar template to that pioneered by Bavaria Yachtbau, including the use of international yacht designers and the application of a low-cost, high volume manufacturing system.⁵

4.4 Sweden (Orust) - Hallberg-Rassy and Najad

The island of Orust is located on the West coast of Sweden; two bridges provide connections with the mainland, and the regional centre of Goteborg to the South. The island's boat-building heritage can be traced to the Viking era. Other traditional industries included agriculture, fishing and canning. Today, its economy is dominated by yacht and small boat manufacturing, augmented by related service industries such as electrical and mechanical engineering. Orust's boatyards export approximately 80% of their output, representing one-half of the country's total exports of yachts and sailboats. It is also an important watersports centre, with eight marinas and several diving schools. The major development of the Orust yacht manufacturing cluster has occurred over four decades. The pioneering innovations of local boat-builder, Harry Hallberg, have already been noted. In the early 1960s, Hallberg's business outgrew its original yard, which was sold to a young Bavarian, Christoph Rassy. Rassy, who had begun his career as an apprentice at a small boatyard in Southern Bavaria, moved to Sweden to pursue his dream of building larger and more impressive boats. His 'Rasmus 35' was innovative in terms of size, it was much larger than locally-produced yachts of the period, and for its centre cockpit protected by a windshield, a characteristic feature of later designs. From the mid-1960s to the early 1970s, the two firms were rivals, constructing elegant long distance (or 'blue water') cruising yachts in a combination of wood and FRP. The businesses were merged following Hallberg's retirement in 1972, initiating a further period of growth (Hallberg-Rassy 2003). The Orust-based yacht builder, Najad was founded in 1971. It has always specialized in the top-end of the blue water cruising market. Hallberg, Rassy and Najad, together with local competitors such as Malo and Maxi, targeted cruising yachts with heavier displacement and semi-bespoke construction, incorporating high quality woodwork in the interiors. As in the French case, there was considerable overlap in product range between these firms, resulting in intense competition. Following the increase in volume production in the 1980s, Sweden's relatively small domestic market was quickly saturated with 'affordable' yachts, creating a short-term slump in demand at this end of the market. The leading Swedish manufacturers effectively turned their backs on the low- and mid-range segments of their domestic market. They have intensified a previous emphasis on niche export markets, supplying high-specification yachts that are distinguished by the quality of their joinery and capabilities in heavy weather conditions.

4.5 England (Solent) - Westerly and Moody

The focal point for yacht manufacturing in England is the Solent, a broad waterway that separates the Isle of Wight from the mainland, and the major commercial and naval ports at Southampton and Portsmouth. In the early nineteenth century, the Solent became the home to several prestigious yacht clubs, including the Royal Yacht Squadron, and local boatyards developed a reputation for the construction of large bespoke sailing yachts, designed primarily for racing (Phillips-Birt 1974: 87-104, Giorgetti 2000: 52-59). It has since been home to many well-known yacht designers and manufacturers, plus related organizations, such as component manufacturers, chandleries (i.e. sector-specific wholesalers and retailers), repair yards, yacht clubs, charter firms, sailing schools and marinas. The post-war revival of yachting was signalled by the first London boat show in 1955. In the 1950s, English yacht builders were amongst the first to experiment with new materials derived from other industries, including the 'hot'

moulding of marine plywood - a technology that had first been applied to the mass production of aircraft during the Second World War. With the introduction of FRP moulding in the early 1960s many new entrants were encouraged into the cluster, while some established firms such as Nicholson adapted traditional wooden construction techniques in order to experiment with this revolutionary material (Phillips-Birt 1974: 225-226, Spurr 2000). Both the incumbent firms and the new entrants benefited from a rapid growth in demand for more affordable cruising and racing yachts that continued over the following two decades. These developments were illustrated by the Contessa 32, launched in 1971 by Jeremy Rogers, one of the new generation of builders. The yacht was constructed in FRP, but epitomized the traditional, heavy displacement design characteristics demanded by the UK's domestic market. The Contessa 32 gained additional plaudits following a sudden storm during the 1979 'Fastnet' race, when many yachts (and several lives) were lost as a direct result of the extreme weather conditions - a Contessa 32 named 'Assent' was the smallest yacht to complete the course. In the aftermath of this disaster, British and American marine engineers produced a detailed technical report, comparing the stability of heavy displacement cruiser-racers, such as the Contessa 32, and the new breed of light displacement racing yachts. The report raised doubts regarding the stability of light displacement designs. It argued that traditional designs provided superior performance in heavy weather, a view that was reinforced by English yachting authorities (Cunliffe 1988). However, the Contessa 32's technical prowess proved insufficient to maintain the fortunes of her designer and manufacturer. Jeremy Rogers' company was one of three leading English firms that were forced to cease operations during the economic recession of 1979-81.⁶ By the early 1980s, volume production in the English cluster came to be dominated by two domestic manufacturers, Westerly and Moody, each producing around 250 yachts per annum. In 1982, Westerly also faced liquidation and was purchased by Sentaway Group, an industrial conglomerate based in the English Midlands. The 1980s were characterized by moderate rivalry between the two leading firms, both of which remained oriented primarily towards domestic customers. For example, in 1989 it is estimated that only 23% of Westerly's production was sold for export. Evidence from former employees, and supported by Westerly's published accounts, suggests that the company was starved of investment during the late 1980s. In 1989, another recession undermined the home market and Westerly's parent company itself became insolvent. The yacht manufacturer experienced its second change of ownership in less than a decade. In 1991, a management buy-out was arranged with funding from the venture capital firm, Nat West Ventures, the proviso being that Westerly adopt an aggressive strategy of acquisition-led growth. However, the strategy of acquiring unprofitable firms from within the cluster undermined Westerly's already precarious finances:

We bought Sadler, what was left of it. Starlight Boatman, we bought them as well. They were loss-making companies, so [we] put all these loss-making companies together and made an enormous loss - which is simple economics really, isn't it? (Interview transcript, 2002 - extract).

By the late 1990s, Moody and Westerly, along with their smaller compatriots, were also experiencing increasing pressure from foreign competitors, such as Bavaria, Beneteau, Jeanneau and Hallberg-Rassy, in their respective segments. Westerly finally went into receivership in May 2000, and was followed by another English firm, Rival Bowman, in 2001. Today, the only survivor of the former volume yacht manufacturers in the English cluster is Moody, a family-

owned firm established for over 150 years. However, in recent years Moody has undergone a radical change in strategic direction, withdrawing from the volume market and re-positioning itself in the much smaller niche of much larger, blue water cruising yachts in the 46, 54 and 64 foot range (Sheahan 2001a, Moody 2003). The firm's new strategic position has been signalled by a change of name, to 'Moody Yachts International', a regular presence at several new international boat shows, and corporate sponsorship for a prestigious international yachting event, the Atlantic Rally for Cruisers (ARC). In summary, the last two decades have seen a substantial retreat from volume manufacturing in the English cluster.⁷ Some English firms, including Moody Yachts International and Oyster Marine, continue to compete in high-end niche markets, but there are no indigenous survivors in the volume sector. Furthermore, despite having one of the world's largest domestic markets for 'affordable' cruising yachts, the cluster has not generated an innovative new entrant capable of challenging its European rivals. In the remaining sections, we analyse the characteristic features of the English cluster, and seek to identify the mechanisms that have contributed to its recent competitive performance.

5. Analysis: explaining the relative decline of the English cluster

5.1 Beyond 'common sense' explanation?

The author of a review article in the specialist magazine, *Yachting Monthly*, has summarized the impact of globalization on English volume yacht manufacturers in the following stark terms:

Fact: British yacht building has been in decline for two decades. Fact: Our surviving boat builders find it all but impossible to compete with the deluge of inexpensive imported yachts (Neilsen 2000: 24).

During our research, we were presented with many competing, and often strongly-held, explanations for this decline. Some manufacturers suggested that competitiveness was undermined by the impact of foreign government subsidies and tax-breaks, high interest rates, the strength of Sterling and chronic under-financing, all of which restricted their capacity to invest in new production technologies and marketing. Yachting enthusiasts and industry analysts echoed these themes, while also pointing to relative performance measures, such as build quality, value for money and customer service. The following analysis of the case evidence has been structured around two contrasting approaches to clustering, Porter's (1990, 2000) diamond and Best's (2001) model of cluster dynamics. It provides some support for these 'commonsense' observations, but indicates a more subtle and complex causality.

5.2 Differentiating cluster characteristics: Porter (1990, 2000)

In his recent publications, Professor Michael Porter has asserted that interactions between the four elements of his diamond framework represent the fundamental basis for cluster dynamics, such that, 'A cluster is the manifestation of the diamond at work' (Porter 2000: 21, emphasis added). Porter's diamond metaphor, and its associated theoretical claims have attracted considerable criticism, yet it remains an influential heuristic for policy-makers (Solvell et al. 1993, DETR 2000, OECD 2001, Ketels 2003). We have applied the four elements of the

diamond framework in the following analysis, with the aim of providing insights into the decline of the English cluster in relation to its European rivals.

First, with respect to factor conditions, Porter (2000: 20) argues that ‘to increase productivity, factor inputs must improve in efficiency, quality, and (ultimately) specialization to particular cluster areas’. From the case study, we can isolate the role played by variations in geographic and climatic conditions, which have pre-disposed manufacturers to develop particular types of yachts. For example, while the English and Swedish clusters continued to produce heavy displacement yachts, suited to the demands of Northern European waters, the French cluster and the new German manufacturers have built lighter displacement yachts that are particularly well-suited to a Mediterranean climate. However, it is difficult to make direct connections between differences in factor conditions and the relative performance in each of the case study examples. For example, the English cluster is well-served with transport infrastructure (e.g. container ports, access to the motorway network) and local towns such as Southampton offer a range of scientific and technological services, such as university marine research departments, that appear at least comparable with those available to its rivals.⁸ Second, in relation to the context for firm strategy and rivalry, Porter re-deployed his central argument from the industry level of analysis to that of the cluster (Porter 1998: 13-17). Vigorous competition between locally-based rivals was identified as an essential characteristic of productive clusters:

Economies with low productivity are characterized by little local rivalry. Most competition, if present at all, comes from imports. Local rivalry, if occurring at all, involves imitation (Porter 2000: 20).

In the 1980s, the French cluster included an impressive number of large firms competing for a share of the volume sailing cruiser market. All of these firms were building similar, wide beamed, light displacement yachts, the kind of product most suitable for the emerging charter market. Government tax incentives may have helped to stimulate this rather cluttered competitive landscape, with each company overlapping their product ranges. The competitiveness between Jeanneau and Beneteau was legendary (Neilsen 2001b). Indeed, since their merger in 1995, the rivalry has been maintained, with dual marketing and development teams (NB Our fieldwork, conducted in 2002, yielded informal comments from interviewees to the effect that, ‘they still hate each other!’). In Sweden, there was a similar overlap in product range between leading firms such as Hallberg-Rassy, Najad, Malo and Maxi, all building ‘Northern European’ yachts with heavier displacement and semi-bespoke construction. Following the initial expansion in volume production in the 1980s, the small domestic market was quickly saturated, intensifying competition and spurring the leading manufacturers to focus on exports. In Germany, where there was less spatial concentration, rivalry was experienced at a national level. Established manufacturers such as Dehler (located in the Northern Rhineland), were confronted with the rise of Bavaria Yachtbau in the mid-1990s, prompting substantial restructuring in the older firms. These experiences contrast with that of the English cluster, where there appears to have been fairly modest local rivalry between two firms, Moody and Westerly, both of which focused their attention on the domestic market. The UK domestic market was relatively large, and the recession of 1979-1981 had forced many local rivals out of business, leaving adequate space to accommodate both firms (NB This perception was evident

from the interviews, where two former Westerly managers identified Moody as their firm's only serious domestic rival during the late 1980s and early 1990s).⁹

Third, we consider Porter's assertion that clusters can only advance if the cluster is able to foster 'sophisticated and demanding' customers in its home market:

In low-productivity economies, the focus is heavily on foreign markets. Advancement requires the development of more demanding home markets [...]. In a global economy, the quality of local demand matters far more than does its size (Porter 2000: 21).

While the available market data are indicative only, they suggest clear demographic differences in absolute and relative numbers of boats, including cruising yachts, in each country. France, for example, has a rather higher overall ratio of boats to population (1:66) compared to the UK (1:100) (IBIN 2005). Yachting also enjoys much higher public visibility in France, reflecting the country's successes in international yacht racing, government promotion of yachting in French schools and the availability of public funds for marina development (Durham 2002). However, it is also clear that, in common with its French counterpart, the English cluster has served a large, sophisticated and demanding domestic market. By contrast, we note that home markets in Sweden and Germany were much smaller than those of France or the UK, and that responses to globalization in the Swedish and German clusters were more strongly oriented towards the requirements of international export markets than to those of indigenous buyers.

Fourth, Porter argues that healthy clusters are characterized by the presence of capable, locally-based suppliers and competitive-related industries. For example, firms in the Swedish cluster have access to the country's highly-developed forest products industries, and associated technological capabilities in wood finishing and joinery that are required to construct high quality wooden interiors (Solvell et al. 1993).¹⁰ Similarly, yacht manufacturers in the Vendee region are part of a French boating products industry that is reportedly the largest in Europe, with some 3,000 firms generating one-third of the total European turnover in the leisure marine industry (Wittamore and Brown 1997). Firms in the French cluster may also gain from their connections to the elite world of international yacht racing, where its national teams enjoy a dominant position. A British Marine Federation report highlighted the inherent advantages of this connection with racing, in terms of technological advance and commercial sponsorship:

In the racing yacht sector, it appears that the French have a significant lead over the UK, particularly in carbon design and manufacture. This is almost certainly as a result of the higher profile of the sport in France and the consequent sponsorship deals, which are rarely seen in the UK (Wittamore and Brown 1997: 34).

The evidence indicates that the English manufacturers have not enjoyed this sort of close interaction with the world of international yacht racing, despite the fact that several of the world's leading designers are located in the English cluster. In addition, although the Solent region has its fair share of world-class component manufacturers, we found little evidence of strong developmental relationships with the volume cruising yacht manufacturers, of the kind identified in the Vendee.¹¹ Perhaps the most significant potential source of advantage for the English cluster has been its proximity to the international yacht charter industry, including companies such as Sunsail, which have been headquartered in the Solent for several decades.

However, it appears that this opportunity has not been exploited to any significant extent. Our interviews with former executives revealed that very few yachts were ever sold for charter work and that these tended to be for sailing schools, rather than for the much larger holiday charter market.

In summary, our analysis suggests that the diamond framework does indeed provide a reasonable 'fit' for our evidence on volume yacht manufacturing in Europe. The framework encourages a taxonomic approach, yielding a structured summary of cluster characteristics that facilitate some inter-regional comparison. However, we contend that, contra Porter (2000: 21), it offers limited insights for those concerned with the contrasting dynamics of competing clusters. In one of his few explicit treatments of 'cluster development', Porter (1998: 240-243) argued that much depends on, 'the efficacy of the diamond's arrows or feedback loops'. The process was presented as being both predictable and self-reinforcing, yet unreceptive to causal explanation:

While the birth of clusters has many causes, the development or lack of development of clusters is more predictable. Though there is no guarantee that a cluster will develop, once the process gets started it is like a chain reaction in which the lines of causality quickly become blurred (Porter 1998: 240 - emphasis added).

By contrast, Porter specifies the causes of atrophy and decline in clusters with greater precision. Two factors are identified, 'internal rigidities' and 'external threats', the latter including technological discontinuities and a divergence between local and external buyer needs (Porter 1998: 244). While these factors are also consistent with our findings regarding the relative decline of the English cluster, they are also rather limited in their analytical power. Causal explanations at this level of generality are insufficient, because they shed no light on critical (and necessarily context-specific) intermediate mechanisms (cf. Grant 1991: 542). These limitations appear to lend empirical support to the assertion that, 'Porter's Diamond is a description of advanced clusters, not an explanation of cluster development' (Best 2001: 89 - emphasis added). We now turn to the Michael Best's own work, and attempt to apply his neo-Penrosian model of cluster dynamics to the English evidence.

5.3 Differentiating cluster dynamics (Best 2001)

Michael Best's recent empirical and conceptual work addresses cluster dynamics, which have been defined as 'interactive processes of capability development and specialization within and amongst firms within a region' (Best 2001: ix). His approach to cluster dynamics connects with an established research tradition, concerned with processes of entrepreneurship, localized learning and adaptation, both within and beyond the boundaries of the firm (Penrose 1959, Richardson 1972, Best 1990, Lorenzen 1998, Lawson and Lorenz 1999).¹² A distinctive feature of Best's open systems model is that it places the dynamic relationship between internal (firm-level) and external (inter-organizational level) processes at the heart of the explanation (figure 1). Best's model is based on the idea that the primary growth driver for the cluster is a 'technology capability and market opportunity' (henceforth 'TC/MO') dynamic that operates within 'entrepreneurial firms' located in a cluster. He defines the entrepre-

neurial firm in terms of its ability to respond to environmental changes by perceiving new market opportunities and developing the appropriate productive capabilities.¹³ In other words, such a firm, ‘does not take the market or the product as given, but as objects of strategic reconstitution’ (Best 2001: 70). Drawing on Penrose (1959: 31-42), Best emphasizes the dual nature of the relationship between technological capabilities and subjective perceptions of productive opportunity. The ability of a firm’s management team to perceive a potential opportunity in the market depends, in part, on that firm’s existing technological capabilities, while the nature of the firm’s response to specific opportunities contributes to the further advance of its capabilities (Best 2001: 70-71). Each of these dimensions is shaped over time, both within the context of the firm and through inter-organizational networking, resulting in unique growth trajectories. The cluster dynamics model recognizes that regional clusters, like other forms of inter-organizational network, possess distinctive causal powers, mechanisms and dynamics (Neergaard 1999, Easton 2000, Blundel 2002). Hence, it recognizes the possibility of isolating different aspects of cluster-level performance - the central

research question addressed by the Porter ‘diamond’. However, Best also incorporates a multi-level dynamic, asserting out that cluster-level phenomena are themselves emergent from the context-specific history of firm-level interactions. In Best’s interpretation, the variety of production-related activities taking place within a cluster gives rise to ‘speciation events’, in which new and unplanned combinations of technologies lead to the creation of new product applications and industrial classifications (Best 2001: 80-81):

This protean character of technological capability, particularly evident in the high tech sectors, is a feature of industrial change even in the oldest sectors. [...] Thus, a region’s technological capabilities are an outcome of a cumulative and collective history of technological advances embedded in entrepreneurial firms (Best 2001: 81).

[Insert Figure 1 here – not reproduced in ORO archive version]

Figure 1. Best’s (2001) cumulative model of cluster dynamics. Source: Best (2001: 70, Figure 3.1 - adapted, bracketed annotation added).

The implication of this is that regional competitive advantage rests on a form of collective entrepreneurship, in which the cluster provides an organizing framework for the creation of new capabilities (cf. Johannisson 2000: 286-293). The process can still be understood in terms of a Penrosian TC/MO dynamic, but one that is now all the more potent since it is no longer constrained within the boundaries of a single entrepreneurial firm (Best 2001: 87-89). In this perspective, the capacity of the English cluster to respond to recent globalization pressures can be re-interpreted by analysing the dynamic interaction between managerial perceptions of productive opportunity and the development of specific technological capabilities in the cluster’s entrepreneurial firms over an extended period. Our application of the Best model is presented in three stages. First, we investigate the various ways in which these capabilities and perceptions have been shaped by the cumulative and collective history of the region, as

reflected in its institutional structures. Second, we conduct a more detailed analysis of the systematic constraint that this history has imposed on firm-level perceptions and practices. Third, we return to the theme of inter-cluster competition, contrasting the TC/MO dynamics of the English cluster with those of its European rivals.

5.4 The English cluster in historical perspective

When we begin to consider the historical evidence, it becomes possible to identify context-specific design, manufacturing and marketing characteristics that extend over several centuries. It was in the mid-seventeenth century that an English king, Charles II, first commissioned a series of modifications to broad-beamed Dutch yachts for the purposes of racing. The king's enthusiasm for yachting initiated a long-standing connection between the new sport of 'yachting' and England's socio-economic elite. As we have seen, in the early nineteenth century the Solent became a focal point for English yacht racing, and was populated by exclusive yacht clubs, designers and builders, all of which were oriented towards large racing yachts. Yachting remained a socially-exclusive activity through the late nineteenth century, which was characterized by an unsustainable fashion for ever-larger and more elaborate designs. In the early twentieth century, there were the first signs of a more diverse sailing community, which was served by smaller yachts and some 'one design' sailing dinghies (Blundel 2005). The process of democratization was accelerated by the two world wars, which influenced both manufacturing practices and the prevailing social climate. By the early 1960s, English yacht designers were successfully adapting their products to the more modest requirements of a 'new breed of family sailor', notably by building in new materials such as plywood and FRP (Jermain 2002). However, despite these adaptations, English yacht designers and builders maintained their preference for traditional, heavy displacement designs. Although a few lighter displacement designs were introduced in the 1970s and 1980s, the English firms remained oriented towards a domestic owners' market of affluent, life-long yachting enthusiasts. There were strong social and cultural connections between English yacht manufacturers and their traditional customer base in the immediate post-war years; the former group were described by one respondent as 'largely ex-forces (mainly Royal Navy) with a golden handshake [i.e. pension] burning a hole in their pockets'. Although some 'affordable' yachts were produced in this period, the design principles of established firms such as Westerly and of new entrants such as Jeremy Rogers, reflected traditional customer expectations for heavy-displacement yachts, suited to blue water sailing. One of our interviewees characterized the average customer of an English firm in the early 1970s as being, 'in his sixties, retired and had red [canvas] trousers'.¹⁴ Another referred to English yacht manufacturers continuing to design for 'Sir Francis Chichester'. In 1966-1967 this celebrated English adventurer made a widely-publicized solo voyage around the world at the age of 64 years. His yacht 'Gipsy Moth IV' was custom-built, and combined recent technological advances (e.g. in electronic instrumentation) with a narrow beamed heavy-displacement design (Simpson and Angeloglou 1967). By the 1980s, English firms were confronted by the disappearance of this customer base, and a growing recognition that they had effectively turned a blind eye to the radically different requirements of emerging markets, and specifically to the type of customer engendered by the international yacht charter companies. Furthermore, their relatively fixed perceptions of productive opportunity had reinforced, and in turn were reinforced by, a parallel lack of development in technological capabilities, relative to the rival clusters. This is not to say that the English cluster did not deploy new technologies,

such as FRP and marine electronics, but that the underlying design principles and production practices had fallen behind.

5.5 The systematic constraint on cluster dynamics

We have explained the perpetuation of outmoded principles and practices in the English cluster in terms of the country's distinctive maritime heritage, and the influence exerted by local cultural and institutional structures such as the Royal Yachting Association, the leading yacht clubs and the yachting press. The English yacht manufacturing firms were actively involved in the reproduction of shared values and perceptions within these social networks, yet their response to productive opportunities was also a product of the historically contingent environment in which they were located (Penrose 1959: 53, Best 2001: 65). For example, the preference amongst English manufacturers for heavy displacement designs could be reinforced by events, such as the disastrous 'Fastnet' race in 1979, which was widely interpreted as demonstrating their superior seaworthiness. In effect, entrepreneurial firms located in the English cluster were operating under a powerful and region-specific institutional isolating mechanism (Oliver 1997), which exerted a systematic constraint on the TC/MO dynamic at the level of the firm (cf. Jones 2001). A former marketing executive at one of the English firms described the powerful influence of this constraint:

[Beneteau] produced charter versions of their boats very early on, and sold them in large lumps, cheap boats suitable for charter, three different cabins three different heads [i.e. toilets/washrooms]. We built owners' boats and that was our choice. I am not saying it was the wrong choice but we built owner's boats and we missed out on the charter boom. Given our time again I am not sure we would necessarily have gone for that because we were comfortable with the niche, its just that we made our niche 'too niche' [sic] by being a bit old fashioned, trying to ignore the comforts and so on (Interview transcript, 2002 - extract).

The symptoms of this problem in the English firms included the persistence of inappropriate craft production practices, and the associated technological capabilities, despite a fundamental change in the nature of the market opportunity, which occurred as a result of globalization pressures. By contrast, we have already noted the results of a conscious decision to retain craft skills in the Swedish case, where firms have enhanced existing technological capabilities in the design and manufacture of high quality wooden interiors in order to re-focus on a specific market opportunity. English firms also suffered the consequences of continuing under-investment in design and manufacturing technologies, coupled with the retention of outdated 'building-to-stock' models. At the same time, the managers of firms in the cluster appeared to discount the competitive threat posed by the broad beamed, light displacement designs that were emerging in continental Europe. A common theme in our interviews with former managers in the cluster, in coverage of yachting in the specialist media and in responses to our questions on the internet discussion boards, was of a shared disregard for light displacement designs in this period. There were many anecdotal comments, to the effect that these 'flimsy big dinghies' would be unsafe if the unfortunate owners were 'caught in a blow' (i.e. a storm at sea), reinforced by technical arguments regarding a yacht's inherent stability and its ability to recover if capsized (i.e. up-turned) (Cunliffe 1988, Blyth 2002). The cumulative effect of this isolating mechanism, and of the different technological trajectories that it helped to engender, would not be fully recognized

in England for several years. However, by the early-1990s the impact on English firms became more acute. Rival clusters in France and Sweden had responded aggressively to the globalization drivers, while a new model of volume yacht manufacturing was created through the agency of firms located in Germany. Unconstrained by established practices and assumptions, their founders were able to reproduce advanced manufacturing and logistical capabilities derived from other industries. Lacking the TC/MO dynamic generated by their rivals, firms in the English cluster proved incapable of meeting the emerging charter market's demands for flexibility, consistency and speed of response. Furthermore, the failure to upgrade technological capabilities in design and production eventually proved damaging in England's core domestic market for traditional 'owners' boats'. By the early 1990s, this market had become divided into a younger generation that was increasingly attracted to the new designs of the French and German firms, such as Beneteau/Janneau, Bavaria and Hanse, and a much smaller group whose traditionalist requirement for premium, ocean-going yachts was now the primary target of export-oriented Swedish firms, such as Hallberg-Rassy and Najad.

5.6 Contrasting cluster dynamics

Finally, we need to compare the dynamics of the English cluster to those of its European rivals. In comparing the case evidence, it is necessary to consider relationships between different levels of analysis identified in Best's model and to recognize the complex temporality that this entails:

Organisation and time are integral to the capabilities and innovation perspective. The entrepreneurial firm drives a cumulative technological capability trajectory that advances with each consecutive technology and market dynamic. This is a process of increasing capability specialisation (Best 2001: 87).

This inherent complexity can be seen in the way that the institutional isolating mechanism influenced developments in the English cluster. While it may have contributed to a gradual attrition of firms in the English cluster in preceding decades, the full effect of the mechanism did not become apparent until the mid-1990s. This was the point at which the decisions by the managers of English firms to continue producing owners' boats to heavy displacement designs, coupled with their limited progress in upgrading technological capabilities, were first exposed to the full force of international competition. As exchange rate differentials moved against Sterling, and the domestic market declined, the remaining English volume manufacturers found themselves facing rivals in other European regions that were already engaged in a new TC/MO dynamic. For example, entrepreneurial firms such as Beneteau- Jeanneau had already been pursuing the new productive opportunities for several years. Volume yacht manufacturing in the Vendee region was therefore open to higher-level cluster dynamics (i.e. technological diversification, open-systems dynamics, specialization and speciation) indicated in Best's model (figure 1). This increased pace of adaptation and creativity, operating at firm- and cluster-level, enabled the French to gain a dominant position in the market, while volume yacht manufacturing in England was stalled at the level of its entrepreneurial firms. It took several years for the full consequences of this disjunction to become apparent, by which time the English cluster had missed its opportunity to reorganize into a more competitive configuration.

To summarize, we suggest that application of Best's (2001) model to the case study evidence has helped us to identify a causal sequence relating to the relative decline of the English cluster. The analytical value of the model lies in the way it directs attention towards the identification of historically-based and context-specific TC/MO dynamics, and ways in which these dynamics connect entrepreneurial firms, inter-firm networks and regional clusters. In the English case, the analysis suggests that institutional constraints on the internal dynamics of entrepreneurial firms created a fundamental obstacle to change in the face of globalization pressures. Although other contingent factors have been identified in the English case, the absence of this firm-level dynamic would prove decisive in the cluster's subsequent retreat from volume manufacture.

6. Conclusions

This paper has explored the differential impact of globalization on volume yacht manufacturers in four European regions, focusing on the relative decline of a long-established English cluster. The opening section of the case identified three inter-related drivers of globalization:

- homogenization of the cruising yacht market under the auspices of the new international yacht charter companies;
- dissemination of generic product and process innovations, in areas such as computer-aided design and manufacturing, supply chain management and international logistics; and
- regionalization of regulatory frameworks governing yacht design and manufacturing.

The impact of these drivers was then reviewed in the case of yacht manufacturers in France, Sweden, Germany and England. The four cases were analysed with reference to two conceptual frameworks. First, Porter's (1990, 2000) competitive 'diamond' was applied to the case material in an effort to explain their contrasting regional evolutions. The heuristic value of the framework was demonstrated, both as method for structuring complex material, and for abstracting some significant interconnections between discrete elements of the diamond. The analysis also indicated a serious limitation in this characteristics-based framework, highlighted in previous studies (Best and Forrant 1996: 238-241, Martin and Sunley 2003). The diamond framework yielded plausible descriptions of the constituent elements of each cluster, but offered very little insight into the way that specific causal sequences contributed to concrete outcomes in time and space. Best's (2001) model of cluster dynamics was then applied to the English case study. The findings indicated a location-specific causal sequence that was not evident in the previous analysis. This suggested that the English cluster had failed to enter into the kind of virtuous cycle depicted in Best's model due to the impact of an institutional isolating mechanism, which had exerted a constraint on its 'internal' (i.e. firm-level) dynamic. The failure of this neo-Penrosian 'technological capability and market opportunity' (TC/MO) dynamic blocked the operation of cluster-level dynamics, contributing to a sharp decline in the relative performance of the English cluster over the last two decades. This causal sequence may be contrasted with those of competing regions. Although detailed analysis of other sequences is beyond the scope of the present paper, there are some strong indications. For example, in the case of Germany, it appears that entrepreneurial firms played an instrumental role in establishing a new TC/MO dynamic, in response to similar globalization pressures. It is not possible to draw firm

policy implications from an exploratory study of this kind. However, it does provide additional empirical support for the argument that policies seeking to address differences in regional development outcomes would benefit from more probing analyses of the underlying processes, in all their temporal and spatial complexity (Scott and Storper 2003: 586-587, Palazuelos 2005: 136-137).

The necessarily brief application of the Best (2001) model has indicated three ways in which it might complement or enhance the ‘mainstream’ (i.e. Porterian) approach to cluster analysis. First, elements of the model can be used to incorporate processes taking place below the level of the cluster (i.e. in this case, firm-level mechanisms involving managerial cognition and technological capability development), and connect them to localized learning at an inter-firm level (Lorenzen 1998: 11-12). Second, researchers can use the model to trace the causal relationship between these processes and broader institutional factors, thereby overcoming a significant weakness in the characteristics-based approach. Third, the model encourages researchers to pursue these connections temporally as well as spatially (Wilson and Popp 2003); an increased use of historically-informed approaches can provide a much-needed counterweight to the somewhat static, cross-sectional orientation of the diamond framework. In summary, our analysis suggests that in this case, the observed differences in cluster responses to globalization were predicated on the internal dynamics of entrepreneurial firms. We conclude that the cluster dynamics model offers an important corrective, restoring these focal actors and their ‘technological capability and market opportunity’ dynamic to a prominent position within a multi-level framework (Davidsson and Wiklund 2001, Blundel 2006). We also acknowledge that multi-level concepts, such as the cluster dynamics model, pose a considerable methodological and empirical challenge for anyone seeking to trace these intricate processes across time and space.

Notes

1. In an earlier version, the reference to competition and collaboration is replaced by the phrase ‘linked by commonalities and complementarities’ (Porter 1998: 199).
2. See, for example, Clark (2000), Simmie (2002) and Martin and Sunley (2003); the related literature on inter-organizational networks has generated a similar set of critiques (Oliver and Ebers 1998: 549).
3. Cruising yachts are still used for racing, but the distinction between cruisers and racing yachts has widened since the 1970s, with the revival of large and increasingly specialized ‘pure’ ocean racing yachts, designed purely for performance (cf. Phillips-Birt 1974: 245-246, Giorgietti 2000: 186-190).
4. The case study concentrates on developments in four contrasting yacht manufacturing centres in Europe. As we have noted in the concluding remarks, the analysis could also be applied to activities located in other regions, including a dynamic cluster on Italy’s Adriatic coast and an emerging centre of design expertise in Slovenia.
5. For example, Hanse has employed Rolf Vrolijk, a Dutch designer of America’s Cup yachts. The company also has introduced new construction technologies and materials that draw on Michael Schmidt’s experience of ocean racing (Hanse 2004).
6. The company produced approximately 800 Contessa 32s, and several other designs. After ceasing production in the early 1980s, Jeremy Rogers established an industrial moulding business in the local area, while continuing to undertake some boatbuilding. In 1995, he was able

to buy back the original Contessa 32 moulds; his company now produces limited numbers of what are now highly-regarded 'classic' yachts from its Lymington boatyard, along with some related products.

7. One notable exception has been the result of foreign direct investment (FDI) by a leading US volume manufacturer, a direct response to the success of other European clusters. In 2001, Luhrs Marine, established a manufacturing and distribution centre at Portland, on the western fringes of the cluster. Luhrs Marine is now the only yacht manufacturer in England that is fully engaged in the volume market for cruising yachts.

8. For example, the University of Southampton's Wolfson Unit for Marine Technology and Industrial Aerodynamics, which is at the heart of the cluster, provides towing, tank, wind tunnel and analysis services to the designers of small ships and yachts, including America's Cup contenders and larger cruising yachts.

9. The survival of Moody International can, in part, be attributed to an earlier decision to outsource manufacturing, providing the firm with access to the more dynamic technological capabilities of a large powerboat manufacturer. This contrasts with Westerly, where manufacturing remained in-house.

10. Wood has been largely displaced as a building material by reinforced plastics (Spurr 2000). However, it remains a feature in most cruising yachts, notably in the interior. In entry-level and middle-market yachts, this is likely to comprise little more than a cosmetic 'trim'. The most elaborate, wood-lined interiors are only to be found in the premium 'blue water' yacht market (Hallberg-Rassy 2003).

11. However, several successful international component firms have developed in the English cluster. For example, Lewmar plc, a family-owned business founded in the cluster in 1946, has grown from an initial product base in dinghy fittings to become one of the world's leading marine equipment manufacturers.

12. These neo-Penrosian sources form part of a much broader literature on localized learning (Capello 1999, Keeble et al. 1999, Maskell and Malmberg 1999).

13. Best's model is open to the criticism that it offers a somewhat limited treatment of the 'demand' side of the TC/MO dynamic. Professor Best has acknowledged that this as a potential limitation that, in common with other capabilities-based theorizing, might result in an over-emphasis on internal factors (Best 2005).

14. The light-hearted term, 'men in red trousers' was applied to a particular type of English yachtsman, who played an influential role in the yachting community in the period covered by the case study. Their traditionalist approach to yachting was signalled by the choice of clothing (i.e. red canvas trousers) and by strongly-held and well-articulated views on the need for 'seaworthy' yacht designs.

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